

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS

Claims 1-11 (canceled).

12. **(new):** A composition comprising an N-linked high mannose type oligosaccharide derived from the major outer membrane protein of Chlamydia, or a structurally identical oligosaccharide, or a derivative of the oligosaccharide; wherein said N-linked high mannose type oligosaccharide comprises at least five mannose residues, comprises a trimannosyl core consisting of at least two mannosyl branches, one branch linked $\alpha 1 \rightarrow 6$ and the other branch linked $\alpha 1 \rightarrow 3$ to a mannose residue and having mannosyl substitution or branching at the $\alpha 1 \rightarrow 6$ Man residue of the trimannosyl core and mannosyl substitution or branching at the $\alpha 1 \rightarrow 3$ Man residue of the trimannosyl core; wherein said N-linked high mannose type oligosaccharide is capable of binding to host cells to thereby inhibit binding of Chlamydia to said host cells, and wherein said N-linked high mannose type oligosaccharide is present in the composition in an amount sufficient to inhibit binding of Chlamydia to said host cells; and a biologically acceptable carrier, diluent or excipient.

13. **(new):** The composition of claim 12, wherein said N-linked high mannose type oligosaccharide or derivative thereof comprises at least three branches, each of said branches terminating in a mannose residue.

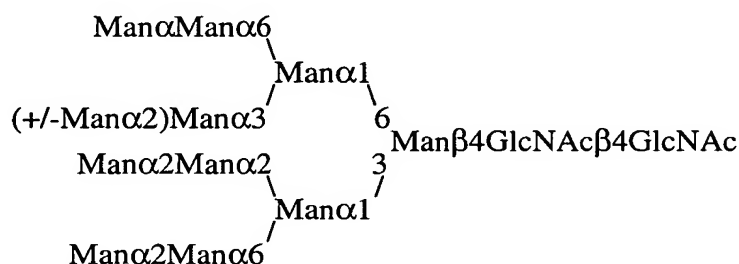
14. **(new):** The composition of claim 12, wherein said N-linked high mannose type oligosaccharide or derivative thereof comprises at least four branches, each of said branches terminating in a mannose residue.

15. **(new):** The composition of claim 13, wherein the non-branched end of said N-linked high mannose type oligosaccharide or derivative thereof terminates in N-acetylglucosamine.
16. **(new):** The composition of claim 14, wherein the non-branched end of said N-linked high mannose type oligosaccharide or derivative thereof terminates in N-acetylglucosamine.
17. **(new):** The composition of claim 15, wherein said terminal N-acetylglucosamine is one residue of chitobiose.
18. **(new):** The composition of claim 16, wherein said terminal N-acetylglucosamine is one residue of chitobiose.
19. **(new):** The composition of claim 17, wherein said chitobiose is linked to an asparagine.
20. **(new):** The composition of claim 18, wherein said chitobiose is linked to an asparagine.
21. **(new):** The composition of any one of claims 12-20, wherein said N-linked high mannose type oligosaccharide or derivative thereof comprises at least six mannose residues.
22. **(new):** The composition of any one of claims 12-20, wherein said N-linked high mannose type oligosaccharide or derivative thereof comprises at least seven mannose residues.
23. **(new):** The composition of any one of claims 12-20, wherein said N-linked high mannose type oligosaccharide or derivative thereof comprises at least eight mannose residues.
24. **(new):** The composition of claim 12, wherein the mannose residues linked to the $\alpha 1 \rightarrow 6$ Man and $\alpha 1 \rightarrow 3$ Man branches of the trimannosyl core are $\alpha 1 \rightarrow 6$ Man, $\alpha 1 \rightarrow 2$ Man, and

$\alpha 1 \rightarrow 3$ Man linkage forms in combination with optional $\alpha 1 \rightarrow 2$ Man substitution at non-reducing mannose residues.

25. **(new):** The composition of claim 24, wherein said N-linked high mannose type oligosaccharide or derivative thereof comprises at least 8 mannose residues.

26. **(new):** The composition of claim 24, wherein said N-linked high mannose type oligosaccharide has the following structure:

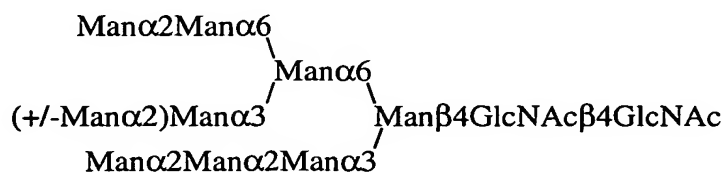


27. **(new):** The composition of claim 26, wherein said N-linked high mannose type oligosaccharide or derivative thereof comprises 10 mannose residues.

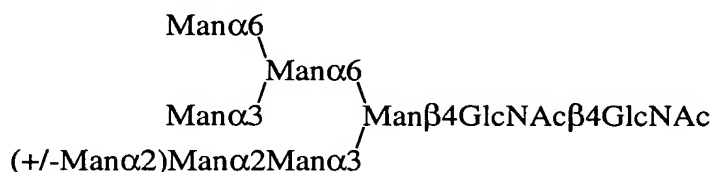
28. **(new):** The composition of claim 26, wherein said N-linked high mannose type oligosaccharide or derivative thereof comprises 11 mannose residues.

29. **(new):** The composition of claim 12, wherein said N-linked high mannose type oligosaccharide or derivative thereof has a second $\alpha 1 \rightarrow 6$ Man and $\alpha 1 \rightarrow 3$ Man branch at the $\alpha 1 \rightarrow 6$ Man branch of the trimannosyl core, with optional $\alpha 1 \rightarrow 2$ Man substitution at non-reducing ends, and with $\alpha 1 \rightarrow 2$ Man substitution at the $\alpha 1 \rightarrow 3$ Man branch of the trimannosyl core.

30. **(new):** The composition of claim 29, wherein said N-linked high mannose type oligosaccharide or derivative thereof has the following structure:

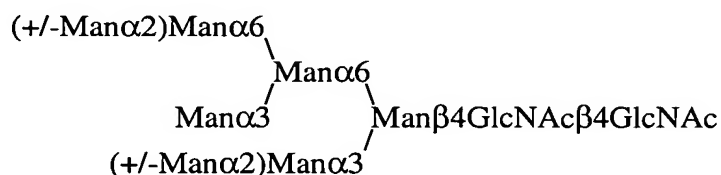


31. **(new):** The composition of claim 30, wherein said N-linked high mannose type oligosaccharide or derivative thereof comprises 8 mannose residues.
32. **(new):** The composition of claim 30, wherein said N-linked high mannose type oligosaccharide or derivative thereof comprises 9 mannose residues.
33. **(new):** The composition of claim 12, wherein said N-linked high mannose oligosaccharide or derivative thereof comprises a second $\alpha 1 \rightarrow 6\text{Man}$ and $\alpha 1 \rightarrow 3\text{Man}$ branch at the $\alpha 1 \rightarrow 6\text{Man}$ branch of the trimannosyl core, but without any $\alpha 1 \rightarrow 2\text{Man}$ substitution thereof, and with $\alpha 1 \rightarrow 2\text{Man}$ substitution at the $\alpha 1 \rightarrow 3\text{Man}$ branch of the trimannosyl core.
34. **(new):** The composition of claim 33, wherein said N-linked high mannose oligosaccharide or derivative thereof has the following structure:



35. **(new):** The composition of claim 34, wherein said N-linked high mannose type oligosaccharide or derivative thereof comprises 6 mannose residues.
36. **(new):** The composition of claim 34, wherein said N-linked high mannose type oligosaccharide or derivative thereof comprises 7 mannose residues.
37. **(new):** The composition of claim 12, wherein said N-linked high mannose oligosaccharide or derivative thereof has a second $\alpha 1 \rightarrow 6\text{Man}$ and $\alpha 1 \rightarrow 3\text{Man}$ branch at the $\alpha 1 \rightarrow 6\text{Man}$ branch of the trimannosyl core, with optional $\alpha 1 \rightarrow 2\text{Man}$ substitution at non-reducing ends, and with $\alpha 1 \rightarrow 2\text{Man}$ substitution at the $\alpha 1 \rightarrow 3\text{Man}$ branch of the trimannosyl core, and further with optional peripheral $\alpha 1 \rightarrow 2\text{Man}$ substitutions.

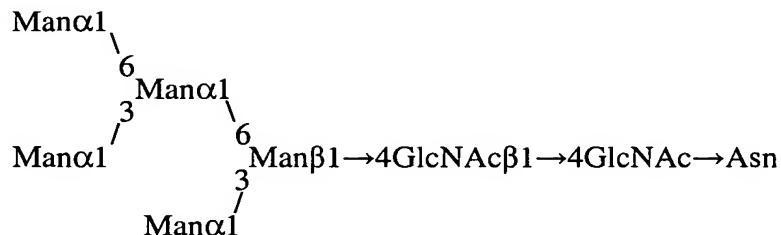
38. **(new):** The composition of claim 37, wherein said N-linked high mannose oligosaccharide or derivative thereof has the following structure:



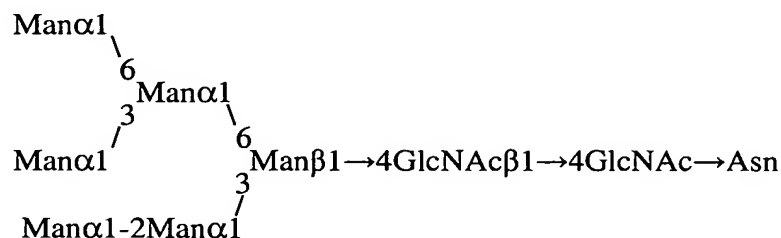
39. **(new):** The composition of claim 38, wherein said N-linked high mannose type oligosaccharide or derivative thereof comprises 6 mannose residues.

40. **(new):** The composition of claim 38, wherein said N-linked high mannose type oligosaccharide or derivative thereof comprises 7 mannose residues.

41. **(new):** The composition of claim 37, wherein said N-linked high mannose type oligosaccharide or derivative thereof has the following structure:

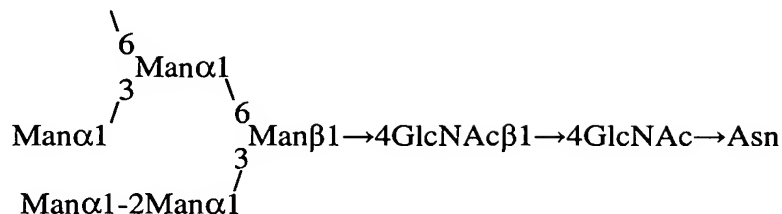


42. **(new):** The composition of claim 37, wherein said N-linked high mannose type oligosaccharide or derivative thereof has the following structure:



43. **Man α 1 (new):** The composition of claim 37, wherein said N-linked high mannose type oligosaccharide or derivative thereof has the following structure:

Man α 1-2Man α 1



44. **(new):** An isolated N-linked high mannose type oligosaccharide derived from the major outer membrane protein of Chlamydia, or a structurally identical oligosaccharide, or a derivative of the oligosaccharide; wherein the N-linked high mannose type oligosaccharide comprises at least five mannose residues, comprises a trimannosyl core consisting of at least two mannosyl branches, one branch linked α 1 \rightarrow 6 and the other branch linked α 1 \rightarrow 3 to a mannose residue and having mannosyl substitution or branching at the α 1 \rightarrow 6Man residue of the trimannosyl core and mannosyl substitution or branching at the α 1 \rightarrow 3Man residue of the trimannosyl core; wherein said N-linked high mannose type oligosaccharide is capable of binding to host cells to thereby inhibit binding of Chlamydia to said host cells.

45. **(new):** The isolated N-linked high mannose type oligosaccharide of claim 44, wherein said oligosaccharide or derivative thereof comprises at least three branches, each of said branches terminating in a mannose residue.

46. **(new):** The isolated N-linked high mannose type oligosaccharide of claim 44, wherein said oligosaccharide or derivative thereof comprises at least four branches, each of said branches terminating in a mannose residue.

47. **(new):** The isolated N-linked high mannose type oligosaccharide of claim 45, wherein the non-branched end of said oligosaccharide or derivative thereof terminates in N-acetylglucosamine.

48. **(new):** The isolated N-linked high mannose type oligosaccharide of claim 46, wherein the non-branched end of said oligosaccharide or derivative thereof terminates in N-acetylglucosamine.

49. **(new):** The isolated N-linked high mannose type oligosaccharide of claim 47, wherein said terminal N-acetylglucosamine is one residue of chitobiose.

50. **(new):** The isolated N-linked high mannose type oligosaccharide of claim 48, wherein said terminal N-acetylglucosamine is one residue of chitobiose.

51. **(new):** The isolated N-linked high mannose type oligosaccharide of claim 49, wherein said chitobiose is linked to an asparagine.

52. **(new):** The isolated N-linked high mannose type oligosaccharide of claim 50, wherein said chitobiose is linked to an asparagine.

53. **(new):** The isolated N-linked high mannose type oligosaccharide of any one of claims 44-52, wherein said oligosaccharide or derivative thereof comprises at least six mannose residues.

54. **(new):** The isolated N-linked high mannose type oligosaccharide of any one of claims 44-52, wherein said oligosaccharide or derivative thereof comprises at least seven mannose residues.

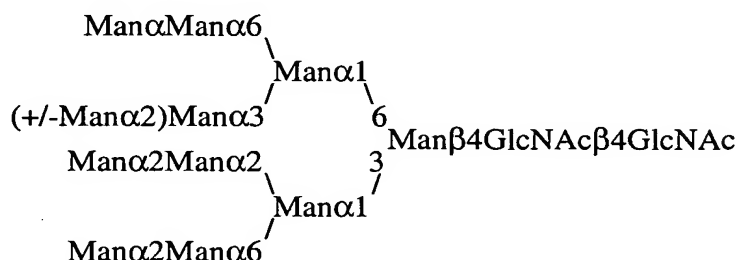
55. **(new):** The isolated N-linked high mannose type oligosaccharide of any one of claims 44-52, wherein said oligosaccharide or derivative thereof comprises at least eight mannose residues

56. **(new):** The isolated N-linked high mannose type oligosaccharide of claim 44, wherein the mannose residues linked to the $\alpha 1 \rightarrow 6\text{Man}$ and $\alpha 1 \rightarrow 3\text{Man}$ branches of the

trimannosyl core are $\alpha 1 \rightarrow 6\text{Man}$, $\alpha 1 \rightarrow 2\text{Man}$, and $\alpha 1 \rightarrow 3\text{Man}$ linkage forms in combination with optional $\alpha 1 \rightarrow 2\text{Man}$ substitution at non-reducing mannose residues.

57. **(new):** The isolated N-linked high mannose type oligosaccharide of claim 56, wherein said oligosaccharide or derivative thereof comprises at least 8 mannose residues.

58. **(new):** The isolated N-linked high mannose type oligosaccharide of claim 56, wherein said oligosaccharide or derivative thereof has the following structure:

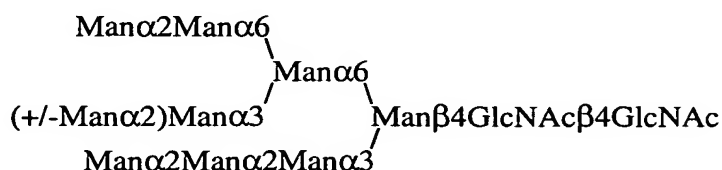


59. **(new):** The isolated N-linked high mannose type oligosaccharide of claim 58, wherein said oligosaccharide or derivative thereof comprises 10 mannose residues.

60. **(new):** The isolated N-linked high mannose type oligosaccharide of claim 58, wherein said oligosaccharide or derivative thereof comprises 11 mannose residues.

61. **(new):** The isolated N-linked high mannose type oligosaccharide of claim 44, wherein said oligosaccharide or derivative thereof has a second $\alpha 1 \rightarrow 6\text{Man}$ and $\alpha 1 \rightarrow 3\text{Man}$ branch at the $\alpha 1 \rightarrow 6\text{Man}$ branch of the trimannosyl core, with optional $\alpha 1 \rightarrow 2\text{Man}$ substitution at non-reducing ends, and with $\alpha 1 \rightarrow 2\text{Man}$ substitution at the $\alpha 1 \rightarrow 3\text{Man}$ branch of the trimannosyl core.

62. **(new):** The isolated N-linked high mannose type oligosaccharide of claim 61, wherein said oligosaccharide or derivative thereof has the following structure:

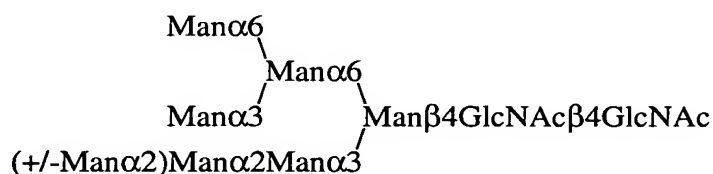


63. **(new):** The isolated N-linked high mannose type oligosaccharide of claim 62, wherein said oligosaccharide or derivative thereof comprises 8 mannose residues.

64. **(new):** The isolated N-linked high mannose type oligosaccharide of claim 62, wherein said oligosaccharide or derivative thereof comprises 9 mannose residues.

65. **(new):** The isolated N-linked high mannose type oligosaccharide of claim 44, wherein said oligosaccharide or derivative thereof comprises a second $\alpha 1 \rightarrow 6$ Man and $\alpha 1 \rightarrow 3$ Man branch at the $\alpha 1 \rightarrow 6$ Man branch of the trimannosyl core, but without any $\alpha 1 \rightarrow 2$ Man substitution thereof, and with $\alpha 1 \rightarrow 2$ Man substitution at the $\alpha 1 \rightarrow 3$ Man branch of the trimannosyl core.

66. **(new):** The isolated N-linked high mannose type oligosaccharide of claim 65, wherein said oligosaccharide or derivative thereof has the following structure:

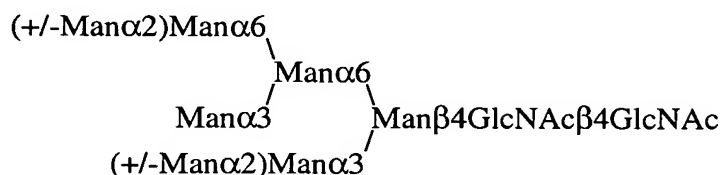


67. **(new):** The isolated N-linked high mannose type oligosaccharide of claim 66, wherein said oligosaccharide or derivative thereof comprises 6 mannose residues.

68. **(new):** The isolated N-linked high mannose type oligosaccharide of claim 66, wherein said oligosaccharide or derivative thereof comprises 7 mannose residues.

69. **(new):** The isolated N-linked high mannose type oligosaccharide of claim 44, wherein said oligosaccharide or derivative thereof has a second $\alpha 1 \rightarrow 6$ Man and $\alpha 1 \rightarrow 3$ Man branch at the $\alpha 1 \rightarrow 6$ Man branch of the trimannosyl core, with optional $\alpha 1 \rightarrow 2$ Man substitution at non-reducing ends, and with $\alpha 1 \rightarrow 2$ Man substitution at the $\alpha 1 \rightarrow 3$ Man branch of the trimannosyl core, and further with optional peripheral $\alpha 1 \rightarrow 2$ Man substitutions.

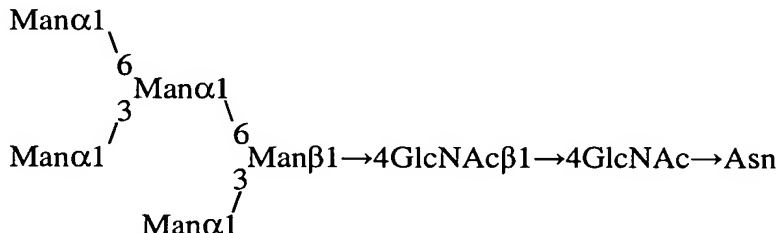
70. **(new):** The isolated N-linked high mannose type oligosaccharide of claim 69, wherein said oligosaccharide or derivative thereof has the following structure:



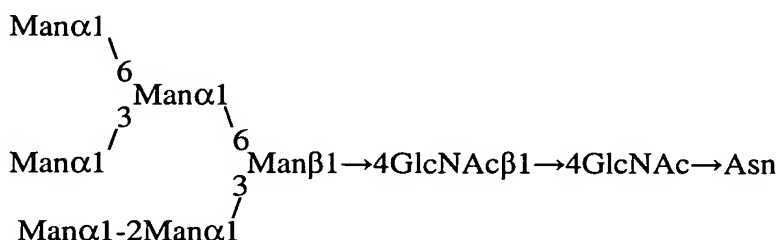
71. **(new):** The isolated N-linked high mannose type oligosaccharide of claim 70, wherein said oligosaccharide or derivative thereof comprises 6 mannose residues.

72. **(new):** The isolated N-linked high mannose type oligosaccharide of claim 70, wherein said oligosaccharide or derivative thereof comprises 7 mannose residues.

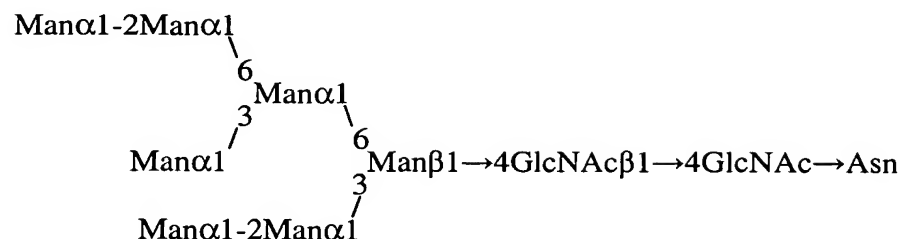
73. **(new):** The isolated N-linked high mannose type oligosaccharide of claim 69, wherein said oligosaccharide or derivative thereof has the following structure:



74. **(new):** The isolated N-linked high mannose type oligosaccharide of claim 69, wherein said oligosaccharide or derivative thereof has the following structure:



75. **(new):** The isolated N-linked high mannose type oligosaccharide of claim 69, wherein said oligosaccharide or derivative thereof has the following structure:



76. **(new):** A multivalent oligosaccharide; wherein the multivalent oligosaccharide comprises a carrier linked to two or more N-linked high mannose type oligosaccharides derived from the major outer membrane protein of Chlamydia, or structurally identical oligosaccharides, or derivatives of the oligosaccharides; wherein each of said two or more oligosaccharides comprises at least five mannose residues, comprises a trimannosyl core consisting of at least two mannosyl branches, one branch linked $\alpha 1 \rightarrow 6$ and the other branch linked $\alpha 1 \rightarrow 3$ to a mannose residue and having mannosyl substitution or branching at the $\alpha 1 \rightarrow 6$ Man residue of the trimannosyl core and mannosyl substitution or branching at the $\alpha 1 \rightarrow 3$ Man residue of the trimannosyl core; wherein said multivalent oligosaccharide is capable of binding to host cells to thereby inhibit binding of Chlamydia to said host cells.

77. **(new):** The multivalent oligosaccharide of claim 76, wherein at least one of said two or more N-linked high mannose type oligosaccharides or derivative thereof comprises at least three branches, each of said branches terminating in a mannose residue.

78. **(new):** The multivalent oligosaccharide of claim 76, wherein at least one of said two or more N-linked high mannose type oligosaccharides or derivative thereof comprises at least four branches, each of said branches terminating in a mannose residue.

79. **(new):** The multivalent oligosaccharide of claim 77, wherein the non-branched end of said at least one N-linked high mannose type oligosaccharide or derivative thereof terminates in N-acetylglucosamine.

80. **(new):** The multivalent oligosaccharide of claim 78, wherein the non-branched end of said at least one N-linked high mannose type oligosaccharide or derivative thereof terminates in N-acetylglucosamine.

81. **(new):** The multivalent oligosaccharide of claim 79, wherein said terminal N-acetylglucosamine of said at least one N-linked high mannose type oligosaccharide or derivative thereof is one residue of chitobiose.

82. **(new):** The multivalent oligosaccharide of claim 80, wherein said terminal N-acetylglucosamine of said at least one N-linked high mannose type oligosaccharide or derivative thereof is one residue of chitobiose.

83. **(new):** The multivalent oligosaccharide of claim 81, wherein said chitobiose is linked to an asparagine.

84. **(new):** The multivalent oligosaccharide of claim 82, wherein said chitobiose is linked to an asparagine.

85. **(new):** The multivalent oligosaccharide of any one of claims 76-84, wherein at least one of said two or more N-linked high mannose type oligosaccharides comprises at least six mannose residues.

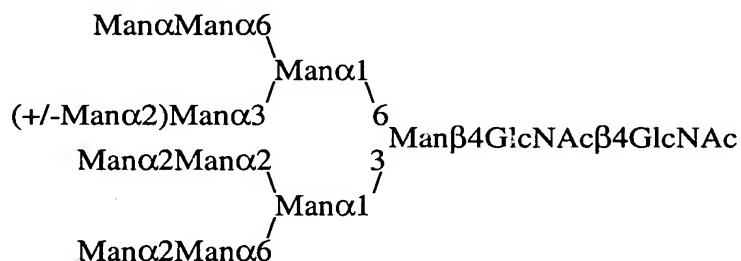
86. **(new):** The multivalent oligosaccharide of any one of claims 76-84, wherein at least one of said two or more N-linked high mannose type oligosaccharides comprises at least seven mannose residues.

87. **(new):** The multivalent oligosaccharide of any one of claims 76-84, wherein at least one of said two or more N-linked high mannose type oligosaccharides comprises at least eight mannose residues.

88. **(new):** The multivalent oligosaccharide of claim 76, wherein the mannose residues linked to the $\alpha 1 \rightarrow 6\text{Man}$ and $\alpha 1 \rightarrow 3\text{Man}$ branches of the trimannosyl core of at least one of said two or more N-linked high mannose type oligosaccharides are $\alpha 1 \rightarrow 6\text{Man}$, $\alpha 1 \rightarrow 2\text{Man}$, and $\alpha 1 \rightarrow 3\text{Man}$ linkage forms in combination with optional $\alpha 1 \rightarrow 2\text{Man}$ substitution at non-reducing mannose residues.

89. **(new):** The multivalent oligosaccharide of claim 88, wherein said at least one N-linked high mannose type oligosaccharide or derivative thereof comprises at least 8 mannose residues.

90. **(new):** The multivalent oligosaccharide of claim 88, wherein said at least one N-linked high mannose type oligosaccharide has the following structure:

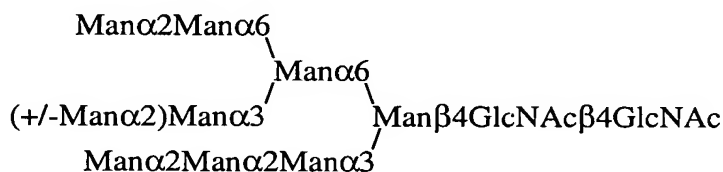


91. **(new):** The multivalent oligosaccharide of claim 90, wherein said N-linked high mannose type oligosaccharide comprises 10 mannose residues.

92. **(new):** The multivalent oligosaccharide of claim 90, wherein said N-linked high mannose type oligosaccharide comprises 11 mannose residues.

93. **(new):** The multivalent oligosaccharide of claim 76, wherein at least one of said two or more N-linked high mannose type oligosaccharides has a second $\alpha 1 \rightarrow 6\text{Man}$ and $\alpha 1 \rightarrow 3\text{Man}$ branch at the $\alpha 1 \rightarrow 6\text{Man}$ branch of the trimannosyl core, with optional $\alpha 1 \rightarrow 2\text{Man}$ substitution at non-reducing ends, and with $\alpha 1 \rightarrow 2\text{Man}$ substitution at the $\alpha 1 \rightarrow 3\text{Man}$ branch of the trimannosyl core.

94. **(new):** The multivalent oligosaccharide of claim 93, wherein said at least one N-linked high mannose type oligosaccharide has the following structure:

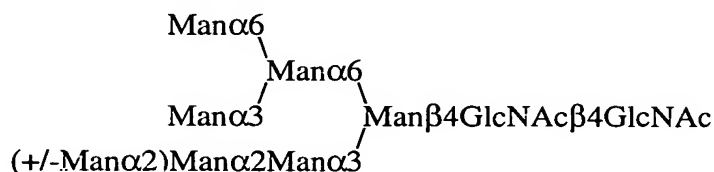


95. **(new):** The multivalent oligosaccharide of claim 94, wherein said N-linked high mannose type oligosaccharide comprises 8 mannose residues.

96. **(new):** The multivalent oligosaccharide of claim 94, wherein said N-linked high mannose type oligosaccharide comprises 9 mannose residues.

97. **(new):** The multivalent oligosaccharide of claim 76, wherein at least one of said two or more N-linked high mannose type oligosaccharides comprises a second $\alpha 1 \rightarrow 6\text{Man}$ and $\alpha 1 \rightarrow 3\text{Man}$ branch at the $\alpha 1 \rightarrow 6\text{Man}$ branch of the trimannosyl core, but without any $\alpha 1 \rightarrow 2\text{Man}$ substitution thereof, and with $\alpha 1 \rightarrow 2\text{Man}$ substitution at the $\alpha 1 \rightarrow 3\text{Man}$ branch of the trimannosyl core.

98. **(new):** The multivalent oligosaccharide of claim 97, wherein said N-linked high mannose oligosaccharide has the following structure:

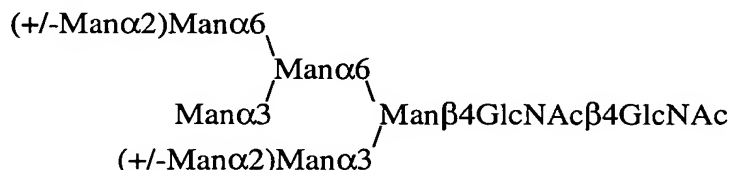


99. **(new):** The multivalent oligosaccharide of claim 98, wherein said N-linked high mannose type oligosaccharide comprises 6 mannose residues.

100. **(new):** The multivalent oligosaccharide of claim 98, wherein said N-linked high mannose type oligosaccharide comprises 7 mannose residues.

101. **(new):** The multivalent oligosaccharide of claim 76, wherein at least one of said two or more N-linked high mannose type oligosaccharides has a second $\alpha 1 \rightarrow 6$ Man and $\alpha 1 \rightarrow 3$ Man branch at the $\alpha 1 \rightarrow 6$ Man branch of the trimannosyl core, with optional $\alpha 1 \rightarrow 2$ Man substitution at non-reducing ends, and with $\alpha 1 \rightarrow 2$ Man substitution at the $\alpha 1 \rightarrow 3$ Man branch of the trimannosyl core, and further with optional peripheral $\alpha 1 \rightarrow 2$ Man substitutions.

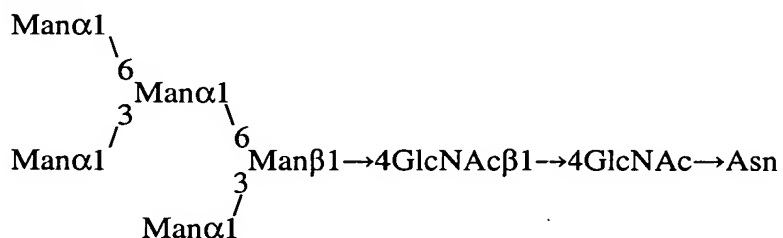
102. **(new):** The multivalent oligosaccharide of claim 101, wherein said at least one N-linked high mannose type oligosaccharide has the following structure:



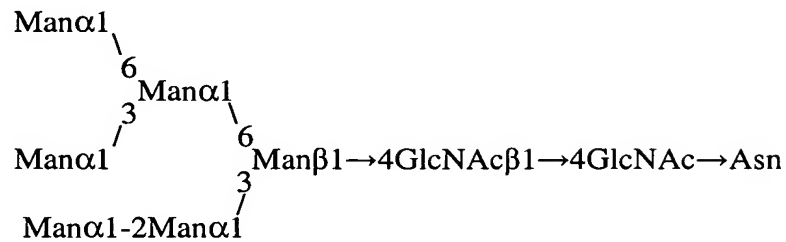
103. **(new):** The multivalent oligosaccharide of claim 102, wherein said N-linked high mannose type oligosaccharide comprises 6 mannose residues.

104. **(new):** The multivalent oligosaccharide of claim 102, wherein said N-linked high mannose type oligosaccharide comprises 7 mannose residues.

105. **(new):** The multivalent oligosaccharide of claim 101, wherein said N-linked high mannose type oligosaccharide has the following structure:



106. **(new):** The multivalent oligosaccharide of claim 101, wherein said N-linked high mannose type oligosaccharide has the following structure:



107. **(new):** The multivalent oligosaccharide of claim 101, wherein said N-linked high mannose type oligosaccharide has the following structure:

